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Pharmacology

Effects of Ginger Juice Aflatoxin-Induced Oxidative Stress in Rats

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Abstract

This study was carried out to investigate the antioxidant properties of the fresh juice of ginger against aflatoxin-exposure in rats. The preventive potential and antioxidant capacity of the juice was evaluated by assaying the activities of antioxidant enzymes and lipid peroxidation content in some organs and erythrocytes of rats. Twenty rats were randomly divided into four experimental groups thus: group 1 served as control, group 2 received ginger juice (2mL/Kg of 10% juice) alone, group 3 received aflatoxins (3.65mg/kg body weight) alone while group 4 was pre-treated with ginger juice for 7 days prior to aflatoxin administration. In the erythrocytes, aflatoxin treatment resulted in significant ( $p < 0.05$ ) increase in erythrocyte osmotic fragility and lipid peroxidation with a concomitant significant ( $p < 0.05$ ) decrease in the level of reduced glutathione. Pre-treatment of rats with ginger juice significantly ( $p < 0.05$ ) prevented these changes by maintaining the activity of superoxide dismutase and preventing the increase in lipid peroxidation in the organs. Ginger juice pre-treatment also significantly ( $p < 0.05$ ) increased the activities of hepatic glutathione-S-transferase, peroxidase and superoxide dismutase. It is concluded that ginger juice has a preventive effect in rats with aflatoxicosis by promoting the antioxidant defense systems.

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